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Directed by Dr. Pam K. Brown. 78 pp.

This study identified student use and instructor implementation of an online video skills modeling library in a survival swimming course at a United States service academy. The primary aim was to identify best practices in the use and implementation of the video skills library. The secondary aim was to clarify any specific relationships between number of times viewing the video models of graded skills, the time of day viewing the video models leading up to the performance, and the overall performance score of participants on four separate, complex graded skill events. Data from electronic surveys, semi-structured interviews, and student grades were analyzed for the whole group as well as by ability groups. Ability groups were determined by a pre-course, timed 150-yard swim test conducted during summer training prior to beginning the academic program. Based on finishing time, participants were grouped into one of three ability groups: elementary, low, and high. All ability groups received similar instructional cues and were graded on the same skills and rubrics. The most frequent viewers of video modeling performances were elementary, then low, then high participants. Overall performance scores on all four skill tests increased incrementally from elementary to high ability groups. Analysis of combined groups as well as within groups indicated very few significant relationships between performance scores and number of video modeling views. Despite few significant relationships with performance, student ratings of the video model usefulness in their understanding as well as their performance on each of the four skill events remained high amongst all ability groups. Eighty-three percent of students rated the video models' usefulness in increasing their perceived understanding of skill events "moderately to extremely high" for each of the four skill events, regardless

of ability group. Seventy-seven percent also rated the video models' usefulness in increasing their perceived performance of skill events "moderately to extremely high" for each of the four events, regardless of ability group. Analysis of student participant surveys informed current design quality of the video modeling library as well as how well instructors implemented video modeling into the curriculum. Analysis of instructor participant interviews informed current implementation of video modeling practices within the curriculum, assessment of student learning when using video modeling, and recommendations for future instructor use.

The results of this study point towards the complex, yet mutually beneficial, relational intersection of student use and instructor implementation of a video modeling library in this course. The high level of perceived understanding when students watch video models may result in greater in class student engagement and skill development. These findings indicate a need for future research focusing on the effects of video modeling student use and instructor implementation on student engagement. Will using video modeling as an adjunct to in-class instruction pave the way for greater student engagement? Increased student engagement outside of class may lead to additional time for repetitions in class, perhaps affecting student self-efficacy of skills performed in this survival swimming course at this institution.

EFFECTIVE USE AND IMPLEMENTATION OF VIDEO MODELING

IN A SURVIVAL SWIMMING COURSE

by

Jason A. Suby

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the Faculty of The Graduate School at
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Approved by

_____
Committee Chair

To My Family - Your unconditional love and support throughout my continuing education has enabled me to focus on my passion to become the best teacher I can be. I hope my steadfastness in achieving this dream encourages you to not give up on your own personal and professional goals. You can be anything if you put your mind to it and have the support and love of family and friends. Thanks for believing in me!

APPROVAL PAGE

This dissertation written by Jason A. Suby has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

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CHAPTER I

PROJECT OVERVIEW

Current college and university students' increased use of technology has created a challenge for educational institutions to incorporate it more deliberately into the education process. Increased access and exposure to technology may improve performance and inculcate a culture of student engagement (Rashid & Asghar, 2016). Physical education is a field that has traditionally relied heavily on instructor and student demonstrations as pedagogical tools. One technology that is continuing to see increased use in physical education is web-based video modeling instruction. Despite increased student and instructor use and the increase in educational research on the effectiveness of video modeling use on academic performance in the classroom, there is a gap in the research devoted to the educational effectiveness of video modeling use in the physical education field.

Bandura's social learning theory (1977b) supports the idea that people learn from each other through observation, imitation, and modeling. Bandura's bobo doll experiment concluded regardless of sex of the model, children watching a model receive a reward after aggressive behavior towards the bobo doll were more likely to also repeat this aggression towards the doll to be rewarded. Although this research was completed in 1963, the results informed many other observational learning studies using video modeling as a teaching tool.

Video modeling is a teaching modality using a visual model of a desired skill or activity as an aid to improve performance. Types of video modeling include video

prompting, point-of-view modeling, video self-modeling, and basic video modeling. Video prompting utilizes small segments of a skill or activity with strategic pauses to allow the participant to complete each behavioral step prior to proceeding. Point-of-view video modeling uses a video recording from the perspective of the learner. Video self-modeling uses a recording of the learner performing the desired skill or activity. Basic video modeling utilizes a gold-standard performance by someone other than the learner. Regardless of the type of video modeling used, all are aimed at engaging students to learn from and improve upon existing performances.

Basic video modeling has many advantages over live modeling in that it can be viewed repetitively, the model demonstration is consistent, students can regulate the rate of learning through video controls, and it is extremely mobile depending on the technological capabilities of the students and teachers. The use of video modeling outside of standard class time can serve as an enrichment opportunity to visualize the movement or behavior while not actually performing it in class.

In contrast, there are many identified barriers to instructor implementation of video modeling. Recent research by Christ and colleagues (2017) showed that although students in teacher education programs have benefitted from the use of video modeling, graduating teachers are not utilizing this technique in their own practices as higher education teaching professionals. In general, teaching with any form of video was only reported in this study to be occurring on average of three times in each course. Videos being utilized in the classroom primarily originated from video sharing websites. Most of the videos (69.4%) being utilized were made by someone other than the educators themselves, relying on outsider assistance as experts. Jenkins and colleagues (2011) reported that educators with limited technical knowledge are less likely to learn how to

use technology, apply it to their teaching methodology, and implement it in their courses to its full potential. Time constraints in teaching have also been cited in many studies as impeding the use of technology in the classroom (Kampov-Polevoi, 2010; Leary et al., 2006; Mandernach, 2006; Murphy et al., 1998). Although research on video modeling effectiveness at improving physical performances within physical education courses is sparse, there are many documented studies examining effectiveness in improving both cognitive and psychomotor skills.

Background and Review of Literature

Video Modeling Use in and out of the Classroom

Recently, Mitchell and colleagues (2016) explored the pedagogical benefits of high-quality demonstrations in the classroom, concluding that whether live or video-based, the focus on who demonstrates, where the demonstration occurs, what is demonstrated, and how the demonstration is done are critical towards modeling directly benefiting learning and retention of new skills. The use of video modeling outside of standard class time can serve as an enrichment opportunity to visualize the movement or behavior while not actually performing it in class. The pedagogical benefits of visual cues used in video modeling have been found to improve the memory process and recall of knowledge (Shepard et al., 1982; Mayer et al., 1990). These studies, like many others previously mentioned, provide evidence of improved student engagement and learning with video modeling use.

Video Modeling Use in Special Populations

The increased use of video technology in the special education and inclusion classrooms has created numerous possibilities for teaching and learning, one of which is

through video modeling. Both live and video modeling has been shown to be effective in assisting with academic skills development and behavior change of special student populations in school-based settings (Baker et al., 2009; Hitchcock, et al., 2003), physical skills improvement in children with autism (Ayres et al., 2005; Bellini et al., 2007; Delano, 2007; McCoy et al., 2007; Nikopolous et al., 2006; Shipley-Benamou et al., 2002), and rehabilitation of physical disabilities (Dowrick et al., 1995). The wealth of research in special education and rehabilitation points to video modeling as a beneficial resource in enhancing both behavioral and skill development.

Video Modeling Use in Sports

Fitness professionals, coaches, and educators have also benefited from the effective design and implementation of video modeling to produce behavioral or skill development. Video modeling has proven to be effective in improving athletic performance and learning across a vast array of sports, including tennis (Rikli et al., 1980; Hager et al., 2004), golf (Bertram et al., 2007), basketball (Harle et al., 2001), football (Smith et al., 2006), swimming (McKenzie et al., 1974), gymnastics (Wolko et al., 1993; Bouazizi et al., 2014; Boyer et al., 2009), handball (Sadeghi et al., 2013), and ballet (Fitterling et al., 1983). Boyer and colleagues (2009) reported on young, competitive female gymnasts viewing expert video modeling of gymnastics skills and subsequently improving skill performances more quickly than with coaching and individual practice alone. These are only a few of the many studies indicating a connection between video modeling use and performance enhancement in sports.

Video Modeling Implementation in Curricular Design

Implementation of video modeling in curricular design can be a very difficult task to an untrained educator. LaCava (2008) created an outline specifically targeting the

implementation guidelines for use of video modeling with autistic children. Although these guidelines were created for a special-needs population, the principles could apply to any area within kinesiology where video modeling is being considered as a teaching strategy. This type of standardized guidance for educators could be implemented online and without much cost, thereby reaching a larger audience of educators reluctant to use video modeling within their curricular plan. Similarly, Obrusnikova and colleagues (2016), as well as Duivenvoorden and colleagues (2016), have provided physical education professionals with blueprints for successful implementation of video modeling in physical education at the grade school level. Both pieces of literature are based on survey analysis of educators and their best practice contributions. The systematic implementation of video modeling across various educational disciplines combines many common attributes that could contribute to filling a gap in knowledge at this institution in the survival swimming course as well as many other courses being offered.

Despite its ease of use and little requirement for training on part of the one producing the video model, the overall use, implementation, and effectiveness of video-based learning techniques within higher education physical education courses remains unknown. Instructor implementation and student use of video modeling within a physical education course such as survival swimming could prompt future use and engagement within one or more other physical activities. Subsequently, increased engagement could lead to increased self-efficacy, which could then lead to a healthier lifestyle of today's future leaders of this country. Due to the current increase in student self-learning through video-based technologies and the limited research in physical education use, implementation and effectiveness of video modeling, there is a gap in the knowledge

that future studies could fill and potentially make an immediate impact on student learning and instructor pedagogy.

Purpose, Aims, and Expected Outcomes

The purpose of this research is to identify anecdotal and self-reported best-practices evidence from students and instructors using video modeling within the survival swimming course at a United States Service Academy. Aim on is to examine and develop best practices for student use and instructor implementation of video modeling within a survival swimming course. Aim two is to examine the relationship between video modeling use outside of the classroom, perceived understanding, and overall performance of survival swimming skills. It was expected that viewing video models in this course would be related to better performance scores and perceived as enhancing student understanding and performance.

Approach and Methodology

Survival swimming students recruited shared equal access to the online video model library. Instructor participants recruited were trained survival swimming instructors and not provided previous directives from the course director on how to implement the video modeling library into instruction. Instructors had the ability to deliver the video library the way they felt fit. At no point did any students or instructors decide to opt out of the study protocol. The protocol was approved by the Institutional Review Boards at the University of North Carolina at Greensboro and the host institution where data collection took place.

Student Participants and Procedures

The informed consent and student surveys were sent via email to 308 cadets enrolled in the elementary, low, and high survival swimming sections at the service academy during the fall of 2018 with a 70% participation rate [*n = 217; M = 19.2 years, SD = 0.2; 167(77%) males and 50(23%) females; 150(69.1%) Caucasian, 30(13.8%) African American, 19(8.8%) Hispanic, 18(8.3%) Asian*]. All descriptive statistics are representative of the population of students at this institution at the time of data collection. Gender distribution at the service academy during this time-period was exactly 77% male and 23% female. Race distribution was 65% Caucasian, 14% African American, 9% Hispanic, 8% Asian, 4% Other. The sample included participants from the elementary (*n = 58; 27%*), low (*n = 66; 30%*), and high (*n = 93; 43%*) levels of the survival swimming course. Participants were primarily from the sophomore class (*n = 199; 92%)* with juniors (*n = 14; 6%*) and seniors (*n = 4; 2%*) comprising smaller percentages (Appendix A). Student subjects that did not respond to initial email surveys were sent reminders every 24 hours until completion with the ability to opt out at any time. Participation was voluntary and there were no incentives provided besides the potential of adding important knowledge towards improving pedagogy within the course.

Five surveys were utilized for students. The pre-course survey queried past and present use of video modeling (Appendix B). Within twenty-four hours after completing each of the four required survival gate skills in class, participants were emailed a link to a one-minute survey collecting self-reported video modeling views, most recent time viewing the video, perceived understanding and performance of the survival gate after video use, instructor usefulness at implementing the video models into the course, and two open-ended questions for feedback on how to improve the quality and

implementation of the video models in the course. In addition, scores from each of the four survival gate tests were attained through the academy grades program as part of the participant consent. Student participant data was stored on a secure server behind Department of Defense (DoD)-approved firewall security.

Instructor Participants and Procedures

The informed consent and instructor surveys were sent via email to all ten of the current survival swimming course instructors at the service academy during the fall of 2018 with a 100% participation rate [*n = 10; M = 39.2 years, SD = 12.1; 10 (100%) males; 10 (100%) Caucasian*]. There were no women and no minorities on the survival swimming staff at the time of this study. During the data collection period, the instructor subjects taught a variety of survival swimming levels, including: elementary only (*n = 4; 40%*), low only (*n = 1; 10%*), high only (*n = 1; 10%*), all three levels (*n = 1; 10%*), and elementary and low levels only (*n = 3; 30%*). Participants ranged in swimming instruction experience from zero to 26 years *(M = 5.1 years, SD = 8.7)*. Participation was voluntary and there were no incentives provided besides the potential of adding important knowledge towards improving pedagogy within the course.

The pre-course survey queried past and current use of video modeling (see Appendix C). Instructor subjects that did not respond to initial email surveys were sent reminders every 24 hours until completion with the ability to opt out at any time. Instructor participant data was stored on a secure server housed at the OIR behind DoD-approved firewall security. Phase two of instructor participant data collection consisted of a private, one-hour semi-structured interview, completed within one week of the course ending. Participants were audio recorded and asked a series of standardized questions pertaining to their past and current use of video modeling as a teaching tool in the

survival swimming course (Appendix C). Qualitative data from this subject pool focused on instructor experiences with implementing video modeling as a teaching tool in survival swimming. The investigator used textual data from both surveys and interviews in analysis, which allowed for discovery and exploration within the natural settings of the survival swimming course. All qualitative data attained through open-ended survey questions as well as participant interviews were analyzed by the investigator using inductive summary of responses analysis through a six-step process. These steps included (1) preliminary planning, (2) open and axial coding, (3) construction of a codebook, (4) piloting the codebook, (5) deploying the codebook on all data, and (6) finalizing the summary of the responses.

Findings

Results from the student participant pre-course survey revealed that 91% of participants had previously used video modeling to learn a physical skill or sport; 94% of those previously using video models rated then as extremely, very, or moderately useful in improving their performance on physical skills; 56% ranked video modeling use as their number two tool to learn a new physical skill or sport, second only to live video modeling; and 64% of participants had watched one or more of the survival gate video models prior to the class beginning (Table 1). Results from the instructor participant pre-course survey revealed that 90% of participants had previously used video modeling to teach a physical skill or sport; 88% of those previously using video models rated then as extremely, very, or moderately useful in improving student performance on physical skills; 90% ranked video modeling use as their number two tool to teach a new physical skill or sport, second only to live video modeling.

Table 1. Average Survival Gate (SG) Score and Number of Video Model Views by Course

Course	SG One Avg /20	SG One Avg Views	SG Two Avg /30	SG Two Avg Views	SG Three Avg /40	SG Three Avg Views	SG Four Avg /45	SG Four Avg Views
PE320 Elementary	14.3	1.9	15.5	2.6	15.0	2.6	25.4	2.6
PE321 Low	18.3	1.4	27.8	2.0	16.2	2.1	35.7	1.7
PE322 High	19.7	1.6	29.2	2.0	29.6	1.8	40.1	1.7
Combined	17.8	1.6	25.1	2.2	21.6	2.1	34.8	1.9
Total Video Views	350		470		452		419	

Video Views and Performance

One-way analysis of variance (ANOVA) was conducted on three groups using SPSS analysis, comparing means in survival gate scores, perceived understanding, and perceived performance. The groups compared were separated by zero views of the video model, one to two views, and three or more views. Table two is results for survival gate mean scores by group. There was a statistically significant difference between groups for survival gate two. Tukey's honestly significant difference (HSD) post hoc test showed a statistically significant difference between the zero views and the three or more views group (p=0.021). There was also a statistically significant difference between groups for survival gate four. Tukey's HSD post hoc test showed a statistically significant difference (p=.013) between one to two views and three or more views groups.

Table 2. Survival Gate Mean Scores by Number of Video Model Views

Graded Event	Zero Views	One to Two Views	Three or More Views	*F*	*p*
Survival Gate One	19.1 ± 3.0	17.7 ± 5.1	17 ± 5.8	1.53	.219
Survival Gate Two	29.3 ± 2.3	25.2 ± 9.2	23.3 ± 10.4	3.62	.029*
Survival Gate Three	24.5 ± 11.6	22.1 ± 12.3	20.2 ± 12.0	1.25	.290
Survival Gate Four	35.8 ± 10.4	36.2 ± 9.7	31.4 ± 12.5	4.16	.017*

*p < .05, Means are statistically different between viewing groups.

Table three shows results for perceived understanding scores by group. Table four shows results for perceived performance scores by group. In both cases, there were statistically significant differences between groups for all survival gate tests and Tukey's produced the exact same results for each of the four survival gate tests. For survival gate one, Tukey's showed a statistically significant difference between the zero views and the one to two views group ($p<.001$) as well as between the zero views and the three or more views group ($p<.001$). For survival gate two, Tukey's showed a statistically significant difference between the zero views group and the one view group ($p<.001$) as well as between the zero views and the three or more views group ($p<.001$). For survival gate three, Tukey's showed a statistically significant difference between the zero views group and the one view group ($p<.001$) as well as between the zero views and the three or more views group ($p<.001$). For survival gate four, Tukeys' showed a statistically significant difference between the zero views group and the one view group ($p<.001$), between zero views group and three or more views group ($p<.001$), and between one view and three or more views group ($p=.005$).

Table 3. Perceived Understanding Scores by Number of Video Model Views

Graded Event	Zero Views	One to Two Views	Three or More Views	*F*	*p*
Survival Gate One	4.4 ± 1.1	2.0 ± 0.8	1.9 ± 0.9	110.74	<.001*
Survival Gate Two	4.8 ± 0.8	1.9 ± 0.8	1.8 ± 1.0	123.16	<.001*
Survival Gate Three	4.6 ± 0.8	2.0 ± 1.1	2.2 ± 0.9	68.17	<.001*
Survival Gate Four	4.3 ± 1.2	2.7 ± 0.9	2.2 ± 0.9	45.24	<.001*

Note: Scores; 1=Extremely useful, 2=Very useful, 3=Moderately useful, 4=Slightly useful, 5=Not at all useful

*p < .05, Means are statistically different between viewing groups.

Table 4. Perceived Performance Scores by Number of Video Model Views

Graded Event	Zero Views	One to Two Views	Three or More Views	*F*	*p*
Survival Gate One	4.4 ± 1.1	2.6 ± 0.9	2.2 ± 1.2	52.42	<.001*
Survival Gate Two	4.8 ± 0.9	2.4 ± 1.0	2.4 ± 1.2	54.69	<.001*
Survival Gate Three	4.6 ± 0.8	2.6 ± 1.2	2.6 ± 1.1	32.31	<.001*
Survival Gate Four	4.3 ± 1.2	2.7 ± 0.9	2.4 ± 1.1	36.65	<.001*

Note: Scores; 1=Extremely useful, 2=Very useful, 3=Moderately useful, 4=Slightly useful, 5=Not at all useful

*p < .05, Means are statistically different between viewing groups.

Student and Instructor Feedback

Student participants were afforded an opportunity to provide feedback on two questions for each of the four survival gate surveys. A summary of responses for both

questions is covered in Appendix C. The first question asked for suggestions to improve design quality of the video models. A sample of responses included:

- “provide common mistakes for each survival gate and how to overcome them”
- “I would like to see a fellow student performing and not the instructor”
- “make videos more accessible with other internet platforms”
- “show various angles of the skill to see it from above the water and below”
- “include information on how to practice required skills on dry land”
- “have minority student as a model as a high number struggle in this course”

The second question asked for suggestions on improving instructor implementation of video models. A sample of responses included:

- “have instructor talk more on videos in class; they were very helpful to me”
- “organize the videos on the website so they are separate from other class videos”
- “send out direct links to each video so we don’t have to sort through all the videos”
- “have a smart board on pool deck so we can watch videos before or in class”
- “if the videos are important, make sure you teach and grade them the same in class”
- “send out the videos more often, maybe in each email, or as a library of links”

Instructors were asked seven leading questions in a one-on-one, semi-structured interview. Participants identified live demonstrations as the most effective tool to teach survival swimming, followed by verbal feedback, repetitions, video modeling and team teaching. These results conflicted with pre-course survey results indicating instructors preferring video modeling use as second most effective. Participants indicated live demonstrations were most effective in teaching this course due to the immediate

feedback to students versus having them watch a looped video modeling where angles of viewing are limited, and no feedback is available. Instructors indicated video demonstrations were extremely important adjuncts to the course, providing mental rehearsal of upcoming skills as well as consistent demonstrations that can be used in a mobile setting. Weaknesses of video models identified by participants included: difficult to keep up with sending the links to videos regularly, the way the skills are performed on the videos are not the only way to complete the survival gates, and the models are not always relatable to students.

Despite instructor participants identifying video modeling as one of two most useful modalities to teach survival swimming, very few use this technique regularly in their teaching plan. Many instructors email students a link to the videos only a few times throughout the course and very rarely view the videos themselves beyond the instructor training period where they are required to.

Discussion and Future Implications

The flipped classroom approach, described by Bergmann & Sams (2012), is a learner-centered model delivering instructional content outside of the classroom, mostly through online resources. The internet and its various information sharing platforms provides unparalleled access of course content to students in various disciplines. This study examined the effects of pre-loading survival gate information on student learning. The video modeling library used in this study was designed by the course director and instructors within the survival swimming program. At the time of the study, it existed as an adjunct teaching tool with no requirements for use in instruction. In the absence of a

use policy, instructors utilized the video library in various capacities with only anecdotal evidence supporting their decisions on use.

Student Use

Students in the survival swimming course have four primary methods of receiving the lesson material: reading the syllabus, verbal instruction and feedback, basic video modeling, and live modeling. The pre-course survey also asked students to rank order the four methods of teaching they felt most contributes to their learning of a new physical skill or sport. Sixty-nine percent of students ranked watching a live demonstration of someone performing the skill or sport as contributing most to their learning, followed by watching a video demonstration (29%), reading the syllabus (2%), and verbal instruction (1%). Ninety-one percent of students indicated they had previously used online video instruction to learn a physical skill or sport. Ninety-five percent of that group indicated them to be moderately to extremely useful in improving their overall performance. Combined results from these two survey questions emphasize the importance of assessing best practices of video design and instructor implementation within this course. Because of this data, the course director has now added to the video modeling library all alternative scoring options on survival gate four and is considering reshooting some of the videos to include a more diverse population of student models.

Student use of the video model library follows a distinct path throughout the course. The number of views per student increases from survival gate one through survival gate three before declining for survival gate four, which is considered one of the more complex, stress induced performance tests in the course (Appendix A). Specific reasons for this reduced use after survival gate three may include: instructor encouragement for video viewing may be tailing off at this point of the course, students

my feel more confident in the skills gained throughout the course and feel less need to review requirements, or the fact that survival gate is a combination of previously learned skills learned, thereby requiring less attention through video viewing. In addition, survival gate four recently had some additional tasks added to it during the study. Videos of the additional tasks were not made available until after data had been collected. If this study was repeated at a future day, views for the survival gate four video model may increase due to the development of the new performance requirements.

Students provided feedback on how effective their instructors were at implementing the video modeling library. Overall satisfaction of implementation was 87% across the four survival gate data points. Student satisfaction was attributed to instructors: using links within email communications to send survival gate videos for reviews, referencing and testing knowledge of the videos in class, and encouraging students to go back and reference the videos regularly. Student feedback on improvements for instructor implementation included: better access through multiple internet browsers and applications, making video viewing outside of class a mandatory task in the course, sending direct links to the videos right before class for recency, and adding a smart board or video screen to the pool venues with access to the video modeling library for before, during, or following class. Taken together, this feedback provides assessment data that may serve to inform the course director on future design and use of video modeling in this course.

Instructor Use

Instructors were provided an opportunity to evaluate their own use and implementation of the video modeling library. Ninety percent previously used video modeling for instruction. Of those that had experience with video modeling, perceived

usefulness in improving student learning was graded as extremely to very high. Instructors ranked the use of video modeling as the second-best beneficial teaching modality in this course, falling just behind live demonstrations. These results are consistent with how students responded to the same question regarding how they most effectively learn a physical skill or sport. Consistency amongst students and instructors regarding the effectiveness of video modeling as a learning and teaching tool supports a need for determining best practices using this modality in this physical education setting.

Investigator-led, semi-structured interviews of ten survival swimming instructors informed best practices for use and implementation of video models. The range of teaching experience was between zero and twenty-six years. Six instructors were military officers serving as faculty for three years before transitioning back into the operational Army. Military officers' graduate school education consisted of a two-year physical education teaching curriculum. In most cases, teaching survival swimming at this institution was their first teaching assignment out of schooling. Four instructors were civilian faculty serving in three-year, renewable faculty positions as instructors within the physical education department. Most instructors agreed that live demonstrations, verbal feedback, and making time for many student repetitions in class were the most important teaching strategies to employ within this course. In addition, many sited the importance of using the video modeling library as a read-ahead tool to prepare students for in-class material as well as a refresher in between lessons. A major weakness noted by instructors in relation to using live demonstrations in class was the lack of angles that students were able to view the performance. In most cases, students watched from the pool deck. In many of the video models, events are shown from multiple angles, thereby providing a more global look compared to live demonstrations. In addition, each live

demonstration iteration leaves room for interpretation versus watching the same master demonstration being repeated via video modeling.

In contrast, strengths noted in support of video models included: ability to watch multiple iterations at any time of day, models can be viewed on many devices, videos provide visual and auditory instructions consistent on each viewing, and many angles can be utilized to watch each event. Although video models are assigned by each instructor with academic freedom to do so, all instructors first notified their students of the videos within the initial or first email exchange. A direct link to the YouTube channel was provided and students had to navigate to each survival gate. Some instructors emailed direct links to each video, eliminating any need to comb through the various non-swimming videos on the channel. This direct-link approach received the most consistent positive feedback from students. Due to the brief nature, yet detailed content and delivery, of each video, instructors agreed the more prepared students were watching the videos, the less questions they had, resulting in additional time for repetitions.

Instructors were queried on how often they themselves watch the videos. Many instructors are not watching the videos they are sending out prior to class during the school year, only checking to ensure that the link works. Instructors not watching the videos prior to sending them out indicated that they had watched the videos previously and were comfortable with the content. Instructors indicating that they also watch the videos before they send them out were most concerned that they were up-to-date on the video material they were asking the students to view. In addition, they were more apt to reference the video performance in class as well as check for compliance in student viewing.

Video Design

In all four student surveys, the approval of the design quality of the video models was between 76-89% “moderately” to “very” effective. Being that the videos were professionally designed and produced, these ratings were lower than expected. Student suggestions that could improve the way the videos are designed included: include more instruction on alternative ways to accomplish the same task (especially for the lower level students), change the model attributes to look more like average students taking this course, and improve the angles of the shots to include underwater and above water views of all survival gates. Instructor suggestions that could improve video design included: show variations of commonly missed skills (survival float, underwater swimming), improve the angles of the shots to include underwater and above water for all skills, and design a separate video library for survival swimming that does not include videos from other areas of the program. The design of the video library is critical to both instructor and student use. This feedback serves to inform future design decisions that could lead to increased use by both populations.

Instructor Implementation

In all four student surveys, instructor effectiveness at encouraging viewing of the video models was between “moderately” to “extremely” effective. Although this is a very high approval rating, there were notable suggestions by students that could improve the way the videos are being distributed, including: promote the video modeling library more both in class and via email, videos should be organized better online and instructors should point them directly to the video they want them to watch versus the video library, value of the videos should be made clear up front in class from day one, and an assessment of video viewing should be made prior to the lesson starting. Instructor

suggestions that could improve the implementation of the video library included: add importance of the video library in the syllabus and talk about it in class, check for student compliance and understanding of the video, take feedback from students on the video design the way they are distributed, make videos accessible on many videos sharing websites, and install video ready smart boards in each teaching venue for instructor use.

Conclusions

The results of this study support student use of video modeling as an adjunct to in-class teaching instruction. Although statistical significance was not found to support video modeling affecting performance, practical significance was established for increasing student perceived understanding and performance. Instructors using video modeling regularly indicated students are more prepared for class and ask less questions. Enhancing student understanding and confidence in performance may lead to more effective in-class instruction, increased repetitions, retention of information, and a hypothesized increase in self-efficacy (Bandura, 1977a) in performing the potentially life-saving maneuvers learned within this course. This research supports that of Mitchell and colleagues' (2016) increase in retention of information through frequent modeling use, Bandura's (1994) perceived self-efficacy influenced by similarities between model and student, and Rashid and Ashgar's (2016) increased access and exposure to technology improving performance and inculcating a culture of student engagement. Quality instruction through rehearsed, professionally produced, and well-thought-out videos are not a silver bullet to ensure learning but can enhance any program with quality instruction and resources.

CHAPTER II

DISSEMINATION

A collaborative active learning session (Appendix D), hosted by the lead investigation, will be delivered by the lead investigator to the department of physical education faculty (*n*=45) at the service academy during an August 2019 professional development session. Many courses within the curriculum, such as boxing, gymnastics, combative applications, and lifetime physical activity courses are already incorporating some type of video modeling within the teaching curriculum and many other courses are currently looking to add video modeling in their teaching. It's essential that this information be shared with faculty due to the potential crossover effects the results and discussion may have in other areas of the curriculum using video modeling.

The first 20 minutes to summarize the current study design, methods, results, and field questions. The format will be PowerPoint slide show. The purpose of presenting the study findings up front is two-fold: 1. provides faculty with an overview of video modeling and how it was studied within survival swimming and 2. serves to facilitate collaborative thoughts leading into breakout sessions.

Next, the investigator will divide the faculty into four separate groups by core course teaching committee (boxing, military movement, aquatics, combative applications) for breakout sessions. All students at this institution must successfully complete all four courses prior to graduation. Each committee has a blend of both civilian and military teaching faculty with varying degrees of teaching experience. All faculty in the department belong to at least one of these committees. Course directors of

the courses will act as facilitators for their own course discussion and take notes to share later in the combined session. Based on current staffing, each group will have around 11 or twelve participants.

Video modeling use within the department has grown exponentially within the department. At the time of the study, video modeling was being utilized for: pre-admissions physical training and testing requirements, pre-admissions swimming skill development, physical fitness retention testing, some core course instruction, limited lifetime physical activity instruction, and some intramural coach and referee training. Video models in these areas were created by faculty members for students. To the investigator's knowledge, there have never been collaborative sharing in a large group setting before in this department relative to video modeling.

The purpose of the 30-minute breakout session is to have faculty currently using video modeling in instruction share with others the strengths and weaknesses of their design and implementation strategy. Materials required for breakout sessions are four whiteboards (one per group) and various colored dry-erase markers. To maintain uniformity and streamline discussion following breakout sessions, each dry erase board will be set up the same by the investigator with key topics areas listed on each one. The results of this discussion, coupled with the results of the current study, will help direct the next phase of this breakout session.

The first phase of the breakout session will focus on determining a path forward towards improving video design. Facilitators will lead a discussion on the time, space, and resources required to improve upon the existing library of videos. A timeline may be created to begin planning the development or improvement of a video model library. Facilities best suited to generate the videos should be discussed along with viewing

angles of each activity, personnel best suited to act as models (students, faculty, race, gender, body type, etc.). This portion is expected to take approximately 15 minutes.

The next phase of the breakout session will focus on determining a path forward toward improving instructor implementation. Facilitators will lead a discussion on the accessibility and dissemination of the videos, how learning is or will be assessment following video model use, and best practices for communicating to students how to effectively use the video library in each course. This portion is expected to take approximately 15 minutes.

Following the breakout session, all faculty will reassemble into the original large group setting. Group facilitators will then be called upon one at a time to provide a synopsis of their discussion from their whiteboard, covering both video design and implementation plans. Each facilitator, at the end of their short brief, will also provide to the faculty their personal views on video modeling use within their course. This portion is expected to take approximately 20 minutes (five minutes per facilitator).

The group session will then give way to a question and answer session from faculty for the panel of course directors and the primary investigator of this study. At this time, it is expected and encouraged that course directors and instructors from other areas of the program (intramurals, clubs, lifetime physical activities, and testing) share their personal views on their experiences with video modeling use as teaching modality. Some classes already deploying video modeling as an instructional tool include, but are not limited to: SCUBA, mountain biking, and military movement. Through this discussion, course directors and faculty members may gain further information to combine with the collaborative work just completed in breakout sessions and use it for future video modeling library design and implementation.

The closing remarks of this presentation will be divided into two five-minute sections. The first section will be a synopsis of the collaborative work completed, given by the primary investigator. The strengths of video modeling at increasing student understanding will be emphasized, drawing from examples in the study as well as new examples within the collaborative session. The second five-minutes will be reserved for any closing comments or directives from the program director, as is the case at all military briefings within this department.

Teaching professionals in the department of physical education at this institution search for any evidence linking the use of teaching modalities that be utilized outside the classroom, especially video models, to improve student understanding prior to arriving in class. Physical education lessons at this institution are only 50 minutes in length for 19 lessons. Advanced preparation and understanding of a skill or event could lead to increased student engagement, more focused and quality repetitions, and perhaps great self-efficacy or performance. This flipped classroom model is extending from the academic courses to the physical courses, primarily in response to the nature of physical courses relying heavily on focused repetitions in short blocks of instruction. This professional development presentation may trigger additional faculty research using existing video libraries, promote training on the creation of videos in other courses, or even provide evidence that leads to the importance of using video models to train new instructors in the department.

CHAPTER III

ACTION PLAN

There are numerous immediate impacts that this research will have on professionals within kinesiology. For some, the research may serve as a validation marker for current practice amongst teaching professionals utilizing video modeling within their curriculum. Others might utilize the information gained from this research to improve upon existing practices with video modeling. It is my primary intent to build bridges between quality teaching practices utilizing video modeling and effective assessment strategies of this teaching technique that are easily understood and replicable for various professionals within the fields. In the end, this research should serve to break down barriers between teachers and students in the use of emergent technology in the physical education instructional environment.

Making this information available to instructors within the survival swimming course as well as those coming in this summer to teach is critical. This information will provide instructors a blueprint for how often students should be exposed to these videos to see improvements towards better understanding and ultimately improve performances. In addition, it could alter the dissemination approach current and future instructors choose to use in making the video model library available to students. This local approach will serve to improve the overall usability of the videos within this curriculum as well as teach educators, from a student perspective, what methods of dissemination are most effective towards meeting performance objectives. The timeline to inform current survival swimming instructors of this information at the end of April

2019 via a scheduled professional development session. Incoming instructors will be briefed at the end of June 2019 during new instructor training.

In the longer term, this research will serve to inform a variety of kinesiology professionals on the use and implementation of video modeling. This research will aim to standardize methods for assessing video modeling effectiveness for future teachers and investigators interested in the practical implementation and assessment of this learning technique in higher education physical education. The most complete and relevant research on this topic currently is a meta-analysis of video educational use by Christ, Arya, & Chiu (2017). They reported on an international, ten-year analysis of video use and practices in teacher education. Conclusions from this study indicated that during teacher education training, only 14.7% of teacher educators used video in teaching other future educators. Most of the videos used came from the Internet (69.4%). Use of videos created by teacher educators' students was much less frequent (14.7%). Teacher educators rarely created the videos (7.7%). This study was the most comprehensive of its kind detailing the insufficient preparation of future educators' in teaching with video. What's more troubling is that the population of students in higher education today are more technologically advanced than ever before, relying heavily on electronic learning platforms such as YouTube, Hulu, and other video-based repositories of video information. Either we are not giving our educators the tools necessary to effectively implement and assess video-based learning into their curriculum or there is no interest in pursuing a meaningful connection between the material and how students are learning in a rapidly growing technological-infused environment.

At the end of this investigation, professionals in the field will benefit through: 1. Increased awareness and appreciation of video modeling as an effective tool in

connecting with students and 2. Increased knowledge and preparation in the overall assessment of student learning through video modeling in higher education physical education. The effects of educational professionals in and outside the field of kinesiology are far reaching. The end results will provide online resources for professional educators in higher education physical education that detail successful implementation and assessment of video modeling as a teaching tool. Keeping in mind that not all teaching professionals in higher education have the desire or support for this type of educational tool, it will be imperative for the literature to speak for itself on the importance of educators in keeping up with emergent technology use by students of all ages through the incorporation of video-based learning tools in the curricular design. In the field of kinesiology, we are all facilitators of information. The use of video as a means of learning is a common thread amongst all populations that we are working with in the field of kinesiology. With careful and thorough attention paid to the historical, present, and future use of video modeling in physical education instruction and assessment, this study will have far reaching effects within the field and beyond for all professionals looking to learn more about the successful implementation and assessment of video modeling in a Survival swimming course.

The other service academies, which also have mandatory physical education courses built into their curriculum, may be able to draw upon the conclusions of this research and perhaps utilize the best practices as a guide in evaluating their current video modeling efforts or to create their own videos for use within the physical education courses. Although the similarities in gender, race, and age of their students at these institutions will always be consistent, there are distinct variations in facility space, the weather patterns, and sequencing of physical education course work that would present

challenges that could possibly be simplified by a published best practices manual for video modeling. The investigator is serving on the committee for the upcoming All-Academy Physical Educator's Conference in December of 2021. An informational session discussing the results of this study will presented at this conference to over 75 colleagues at service academies teaching physical education courses.

Great initiatives that occur across the Army and the Armed Forces are usually chosen for publication in the Army Times or even the Military Times, two digital and print media that specialize in hot topics in the various branches of the military. Results of this study will be submitted for publication in Aug of 2019. The basic principles of video modeling design and implementation learned from this study could potentially influence military branches to utilize this form of digital observational learning in areas such as military weapons training, tactical maneuvering, or even for motor pattern relearning following traumatic accidents in combat (i.e. learning how to use hand and fingers again after surgery). Opportunities like online publications at the military strategic level have the potential to reach millions of readers, some of which are educators like myself trying to determine the best ways to teach and learn new physical skills.

Aiming outside of military education and training, this study has the potential to reach a population of physical educators at the K-12 and higher education levels where learning new skills in physical education courses is still very much a developmental process requiring astute attention to detail. A best practices guide would provide a jump off point for educators in these areas that may not be savvy on video use, short on time, or just unsure of how to build a video modeling library of resource and deploy them in a way that will be beneficial to each learner. The investigator intends to submit a proposal to present the findings of this study at the 2020 SHAPE America National Convention &

Expo to be held in Salt Lake City, UT, April 21-25. It is yet to be determined which presentation

Survival swimming courses are offered for many age groups and vary in scope and delivery across the globe. Most incorporate live demos and are focused on stroke development or at minimum, achieving positive buoyancy in the water. The service academy survival swimming video modeling library is available to the public on YouTube and according to the viewing statistics, is being viewed regularly not just at this institution, but around the globe. The far-reaching effects of a video sharing platform such as YouTube would be a great way, in the long term, to share the results of this research so others that may be instructing this course around the globe gain a more fruitful explanation of how the videos are utilized with live participants in a course. The local schools would be a great way to start spreading the word on the video modeling library. The investigator will contact two local high school physical education staffs in June 2019 and set up a 20-minute presentation summarizing the findings of the study and field any questions they may have on video modeling use and implementation.

Local educator conferences in the field of physical education could be a perfect platform for panel discussions of the use of video in the classroom, video analysis, video feedback, and video modeling. Sharing ideas amongst professional colleagues could serve to broaden the use of the best practices learned in video modeling use with this research. There is a potential to present this research within the state at an assessment conference called the Assessment Network of New York, which meets annually for a conference each February. Transferring this knowledge to assessment professionals in education may assist them in determining whether video modeling at their institution should be or is being correctly assessed.

A best practices manual for video modeling use in physical education has the potential to gain widespread use in the physical education environment. Framework for designing and implementing video modeling in education autistic and handicapped children currently exists in quality literary sources, but this has not been replicated in physical education. This research has the potential to fill that gap and add to the professional literature surrounding observational learning. By adding other best practices from other courses within the physical education department, results and conclusions will strengthen the evidence coupling video modeling use outside of class with increased student understanding.

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APPENDIX A

STATISTICAL ANALYSIS

DESCRIPTIVE STATISTICS

Race and Gender of Student Participants

Race	**Total**	**Male**	**Female**
Caucasian	150 (69%)	115 (77%)	35 (23%)
African American	30 (14%)	23 (77%)	7 (23%)
Hispanic	19 (9%)	15 (79%)	4 (21%)
Asian	18 (8%)	14 (78%)	4 (22%)
Total	**217 (100%)**	**167 (77%)**	**50 (23%)**

Student Participants by Age and Gender

Class Year	**Total**	**Male**	**Female**
21 years	4 (2%)	2 (50%)	2 (50%)
20 years	14 (6%)	12 (86%)	2 (14%)
19 years	199 (92%)	153 (77%)	46 (23%)
Total	**217 (100%)**	**167 (77%)**	**50 (23%)**

Student Participants by Class Year and Gender

Class Year	**Total**	**Male**	**Female**
Senior	4 (2%)	2 (50%)	2 (50%)
Junior	14 (6%)	12 (86%)	2 (14%)
Sophomore	199 (92%)	153 (77%)	46 (23%)
Total	**217 (100%)**	**167 (77%)**	**50 (23%)**

Student participants by Course Level and Gender

Course Level Taken	Total	Male	Female
Elementary	58 (27%)	39 (67%)	19 (33%)
Low	66 (30%)	54 (82%)	12 (18%)
High	93 (43%)	74 (80%)	19 (20%)
Total	**217 (100%)**	**167 (77%)**	**50 (23%)**

Instructor Participants by Race and Gender

Race	Total	Male	Female
Caucasian	10 (100%)	10 (100%)	0 (0%)
Total	**10 (100%)**	**10 (100%)**	**0 (0%)**

Instructor Participants by Age and Gender

Age	Total	Male	Female
30-34 years	5 (50%)	5 (100%)	0 (0%)
35-40 years	2 (20%)	2 (100%)	0 (0%)
40-49 years	1 (10%)	1 (100%)	0 (0%)
50-59 years	1 (10%)	1 (100%)	0 (0%)
60-69 years	1 (10%)	1 (100%)	0 (0%)
Total	**10 (100%)**	**10 (100%)**	**0 (0%)**

Full Years Teaching Survival Swimming and Gender of Instructor Participants

Age	Total	Male	Female
0 years	3 (30%)	3 (100%)	0 (0%)
1 year	3 (30%)	3 (100%)	0 (0%)
2 years	2 (20%)	2 (100%)	0 (0%)
18 years	1 (10%)	1 (100%)	0 (0%)
26 years	1 (10%)	1 (100%)	0 (0%)
Total	**10 (100%)**	**10 (100%)**	**0 (0%)**

Course Level Taught by Instructor Participants during Data Collection Period

Course Level Taught	Total	Male	Female
Elementary only	4 (40%)	4 (100%)	0 (0%)
Elementary/low only	3 (30%)	3 (100%)	0 (0%)
Low only	1 (10%)	1 (100%)	0 (0%)
High	1 (10%)	1 (100%)	0 (0%)
All three levels	1 (10%)	1 (100%)	0 (0%)
Total	**10 (100%)**	**10 (100%)**	**0 (0%)**

Average Video Model Views and Average Scores by Course Level and Survival Gate

	Survival Gate #1		Survival Gate #2		Survival Gate #3		Survival Gate #4	
Course	**Avg Score /20**	**Avg Views**	**Avg Score /30**	**Avg Views**	**Avg Score /40**	**Avg Views**	**Avg Score /45**	**Avg Views**
PE320 Elementary	14.3	1.9	15.5	2.6	15.0	2.6	25.4	2.6
PE321 Low	18.3	1.4	27.8	2.0	16.2	2.1	35.7	1.7
PE322 High	19.7	1.6	29.2	2.0	29.6	1.8	40.1	1.7
Combined	17.8	1.6	25.1	2.2	21.6	2.1	34.8	1.9
Total Video Views	**350**		**470**		**452**		**419**	

APPENDIX B

STUDENT PARTICIPANT SURVEY INSTRUMENT AND RESULTS

A. *Student Survey Phase 1: Informed Consent and Student Pre-Course Survey*
This five question, electronically emailed survey and informed consent was administered by the researcher to all students enrolled in the Survival swimming course in round one of the fall of 2018.

Informed Consent: During the first phase of the study, all students enrolled in Survival swimming for term one round one (308 total) were provided the option to take the pre-course survey. Recruitment was performed via email from the researcher. The email provided IRB-approved informed consent as well as a link to the online survey using SelectSurvey software. Those that completed the survey after the first recruitment email were enrolled in the study and received all additional surveys. All subject data was stored behind the service academy OIR firewall on a DoD approved secure server. The survey took 5-7 minutes to complete. The Phase 1 survey was comprised of the five questions below.

Subject Instructions: Please complete the following five-question survey immediately upon receipt.

1. Have you ever used instructional videos to learn a physical skill or sport?

☐ Yes
☐ No

	n	%
Yes	198	91%
No	19	9%

2. If you answered “Yes” to the previous question, how useful has video instructional been at improving your performance on physical skills or sports?

☐ Extremely
☐ Very
☐ Moderately
☐ Slightly
☐ Not at all

	n	%
Extremely	14	7%
Very	94	47%
Moderately	79	40%
Slightly	11	6%
Not at all	0	0%

3. Rank order the following instructional methods (1-4) you think contribute most (1) and least (4) to <u>your learning</u> of a new physical skill or sport:

☐ Reading how to do the skill or sport
☐ Listening to someone tell you how to do the skill or sport
☐ Watching a live demonstration of the skill or sport
☐ Watching a video demonstration of the skill or sport

Instructional Method	n	%
Reading how to perform the skill or sport		
Ranked #1	4	2%
Ranked #2	1	<1%
Ranked #3	30	14%
Ranked #4	182	84%
Listening to someone tell you how to perform the skill or sport		
Ranked #1	2	1%
Ranked #2	33	15%
Ranked #3	152	70%
Ranked #4	30	14%
Watching a live demonstration of someone performing the skill or sport		
Ranked #1	149	69%
Ranked #2	61	28%
Ranked #3	2	1%
Ranked #4	5	2%
Watching a video demonstration of someone performing the skill or sport		
Ranked #1	62	29%
Ranked #2	122	56%
Ranked #3	33	15%
Ranked #4	0	0%

4. Is this your first time being enrolled in DPE Survival swimming?

☐ Yes
☐ No

	n	%
Yes	200	92%
No	17	8%

5. Which of the following survival swimming videos, if any, have you watched prior to starting this course? (choose all that apply)

☐ Survival Gate #1
☐ Survival Gate #2
☐ Survival Gate #3
☐ Survival Gate #4
☐ I have never viewed the DPE Survival swimming videos listed above

	n	%
Survival Gate #1	122	56%
Survival Gate #2	73	34%
Survival Gate #3	76	35%
Survival Gate #4	77	35%
I have never viewed these videos	79	36%

B. *Student Survey Phase 2: Student Within-Course Surveys*

This seven-question, electronically emailed survey was administered via emailed survey by the researcher on four separate occasions throughout the study. The survey took 5-7 minutes to complete. The Survival swimming course contains four graded events called Survival Gates, which are complex physical problems to be solved individually by subjects both above and below the water on a specified lesson. All four of these events were tested around the same time in all three sections (PE320 Elementary, PE321 Low, PE322 High) of this course and surveys were sent within 24 hours of completing each of the following events:

- Survival Gate #1: Lesson 3 (All sections testing)
- Survival Gate #2: Lesson 11 (PE320), Lesson 12 (PE321/322)
- Survival Gate #3: Lesson 14 (PE320), Lesson 16 (PE322), Lesson 18 (PE321)
- Survival Gate #4: Lesson 14 (PE322), Lesson 16 (PE321), Lesson 18 (PE320)

Survival Gate #1 Survey

1. How many times prior to testing **Survival Gate #1** did you watch the video master demonstration?

# Times Watched	n	%
0	33	15%
1	67	31%
2	90	41%
3	16	7%
4	5	2%
5	4	2%
6	1	<1%
7	1	<1%

2. At what time prior to testing **Survival Gate #1** did you last view the video master demonstration?
   - ☐ <1 hr prior to testing
   - ☐ 1-3 hrs prior to testing
   - ☐ 4-6 hrs prior to testing
   - ☐ 7-9 hrs prior to testing
   - ☐ 10-12 hrs prior to testing
   - ☐ >12 hrs prior to testing
   - ☐ I never viewed the video master demonstration prior to testing this skill
   - ☐ I did not yet test this event in my section

Time Last Viewing Video Demonstration	n	%
<1 hour prior to testing	36	17%
1-3 hours prior to testing	12	6%
4-6 hours prior to testing	6	3%
7-9 hours prior to testing	8	4%
10-12 hours prior to testing	26	12%
>12 hours prior to testing	97	45%
I have never viewed the video master demonstration prior to testing	32	15%
I did not yet test this event	0	0%

3. How useful was the video master demonstration in your *understanding of* **Survival Gate #1**?

- ☐ Extremely
- ☐ Very
- ☐ Moderately
- ☐ Slightly
- ☐ Not at all

Usefulness	n	%
Extremely	50	23%
Very	97	45%
Moderately	39	18%
Slightly	6	3%
Not at all	25	12%

4. How useful was the video master demonstration in your *performance of* **Survival Gate #1?**

☐ Extremely
☐ Very
☐ Moderately
☐ Slightly
☐ Not at all

Usefulness	n	%
Extremely	28	13%
Very	61	28%
Moderately	79	36%
Slightly	17	8%
Not at all	32	15%

5. What suggestions do you have to improve the overall design quality of the video for **Survival Gate #1**?

Suggestion	n	%
None	134	62%
No response	55	25%
Include more instruction	15	7%
Didn't watch	5	2%
Other	5	2%
Improve video angles	2	1%
Change model attributes	1	<1%

6. How useful was your instructor at *encouraging your viewing* of the video master demonstration for **Survival Gate #1?**

☐ Extremely
☐ Very
☐ Moderately
☐ Slightly
☐ Not at all

Usefulness	n	%
Extremely	64	29%
Very	44	20%
Moderately	84	39%
Slightly	19	9%
Not at all	6	3%

7. What suggestions do you have to improve the way your instructor used the video model for teaching **Survival Gate #1** in this course?

Suggestion	n	%
None	115	53%
No response	60	28%
Improve encouragement to watch	35	16%
Other	3	1%
Reference videos in class	2	1%
Didn't watch	1	<1%
Organize videos better online	1	<1%

Survival Gate #2 Survey

1. How many times prior to testing **Survival Gate #2** did you watch the video master demonstration?

Times Watched	n	%
0	22	10%
1	59	27%
2	54	25%
3	59	27%
4	12	6%
5	7	3%
6	3	1%
7	1	<1%

2. At what time prior to testing **Survival Gate #2** did you last view the video master demonstration?

☐ <1 hr prior to testing
☐ 1-3 hrs prior to testing
☐ 4-6 hrs prior to testing
☐ 7-9 hrs prior to testing

☐ 10-12 hrs prior to testing
☐ >12 hrs prior to testing
☐ I never viewed the video master demonstration prior to testing this skill
☐ I did not yet test this event in my section

Time Last Viewing Video Demonstration	n	%
<1 hour prior to testing	36	17%
1-3 hours prior to testing	12	6%
4-6 hours prior to testing	6	3%
7-9 hours prior to testing	8	4%
10-12 hours prior to testing	26	12%
>12 hours prior to testing	97	45%
I have never viewed the video master demonstration prior to testing	32	15%
I did not yet test this event	0	0%

3. How useful was the video master demonstration in your *understanding of* **Survival Gate #2**?

☐ Extremely
☐ Very
☐ Moderately
☐ Slightly
☐ Not at all

Usefulness	n	%
Extremely	50	23%
Very	97	45%
Moderately	39	18%
Slightly	6	3%
Not at all	25	12%

4. How useful was the video master demonstration in your *performance of* **Survival Gate #2?**

☐ Extremely
☐ Very
☐ Moderately
☐ Slightly
☐ Not at all

Usefulness	n	%
Extremely	28	13%
Very	61	28%
Moderately	79	36%
Slightly	17	8%
Not at all	32	15%

5. What suggestions do you have to improve the overall design quality of the video for **Survival Gate #2**?

Suggestion	n	%
None	132	61%
No response	61	28%
Include more instruction	16	7%
Other	4	2%
Didn't watch	2	1%
Improve video angles	2	1%
Change model attributes	0	0%

6. How useful was your instructor at *encouraging your viewing* of the video master demonstration for **Survival Gate #2?**

☐ Extremely
☐ Very
☐ Moderately
☐ Slightly
☐ Not at all

Usefulness	n	%
Extremely	66	30%
Very	117	54%
Moderately	18	8%
Slightly	14	6%
Not at all	2	1%

7. What suggestions do you have to improve the way your instructor used the video model for teaching **Survival Gate #2** in this course?

Suggestion	n	%
None	132	61%
No response	67	31%
Improve encouragement to watch	8	4%
Other	6	3%
Reference videos in class	2	1%
Didn't watch	2	1%
Organize videos better online	0	0%

Survival Gate #3 Survey

1. How many times prior to testing **Survival Gate #3** did you watch the video master demonstration?

Times Watched	n	%
0	22	10%
1	59	27%
2	54	25%
3	59	27%
4	12	6%
5	7	3%
6	3	1%
7	1	<1%

2. At what time prior to testing **Survival Gate #3** did you last view the video master demonstration?
   - ☐ <1 hr prior to testing
   - ☐ 1-3 hrs prior to testing
   - ☐ 4-6 hrs prior to testing
   - ☐ 7-9 hrs prior to testing
   - ☐ 10-12 hrs prior to testing
   - ☐ >12 hrs prior to testing
   - ☐ I never viewed the video master demonstration prior to testing this skill
   - ☐ I did not yet test this event in my section

Time Last Viewing Video Demonstration	n	%
<1 hour prior to testing	36	17%
1-3 hours prior to testing	12	6%
4-6 hours prior to testing	6	3%
7-9 hours prior to testing	8	4%
10-12 hours prior to testing	26	12%
>12 hours prior to testing	97	45%
I have never viewed the video master demonstration prior to testing	32	15%
I did not yet test this event	0	0%

3. How useful was the video master demonstration in your *understanding of* **Survival Gate #3**?

☐ Extremely
☐ Very
☐ Moderately
☐ Slightly
☐ Not at all

Usefulness	n	%
Extremely	50	23%
Very	97	45%
Moderately	39	18%
Slightly	6	3%
Not at all	25	12%

4. How useful was the video master demonstration in your *performance of* **Survival Gate #3?**

☐ Extremely
☐ Very
☐ Moderately
☐ Slightly
☐ Not at all

Usefulness	n	%
Extremely	28	13%
Very	61	28%
Moderately	79	36%
Slightly	17	8%
Not at all	32	15%

5. What suggestions do you have to improve the overall design quality of the video for **Survival Gate #3**?

Suggestion	n	%
None	110	51%
No response	55	25%
Change model attributes	24	11%
Include more instruction	10	5%
Didn't watch	7	3%
Other	7	3%
Improve video angles	4	2%

6. How useful was your instructor at *encouraging your viewing* of the video master demonstration for **Survival Gate #3?**

☐ Extremely
☐ Very
☐ Moderately
☐ Slightly
☐ Not at all

Usefulness	n	%
Extremely	64	29%
Very	44	20%
Moderately	84	39%
Slightly	19	9%
Not at all	6	3%

7. What suggestions do you have to improve the way your instructor used the video model for teaching **Survival Gate #3** in this course?

Suggestion	n	%
None	131	60%
No response	57	26%
Improve encouragement to watch	17	8%
Reference videos in class	5	2%
Didn't watch	4	2%
Organize videos better online	2	1%
Other	1	<1%

Survival Gate #4 Survey

1. How many times prior to testing **Survival Gate #4** did you watch the video master demonstration?

Times Watched	n	%
0	25	12%
1	81	37%
2	52	24%
3	28	13%
4	20	9%
5	8	4%
10	3	1%

2. At what time prior to testing **Survival Gate #4** did you last view the video master demonstration?
   - ☐ <1 hr prior to testing
   - ☐ 1-3 hrs prior to testing
   - ☐ 4-6 hrs prior to testing
   - ☐ 7-9 hrs prior to testing
   - ☐ 10-12 hrs prior to testing
   - ☐ >12 hrs prior to testing
   - ☐ I never viewed the video master demonstration prior to testing this skill
   - ☐ I did not yet test this event in my section

Time Last Viewing Video Demonstration	n	%
<1 hour prior to testing	8	4%
1-3 hours prior to testing	72	33%
4-6 hours prior to testing	3	1%
7-9 hours prior to testing	14	6%
10-12 hours prior to testing	8	4%
>12 hours prior to testing	91	42%
I have never viewed the video master demonstration prior to testing	19	9%
I did not yet test this event	2	1%

3. How useful was the video master demonstration in your *understanding of* **Survival Gate #4**?

- ☐ Extremely
- ☐ Very
- ☐ Moderately
- ☐ Slightly
- ☐ Not at all

Usefulness	n	%
Extremely	21	10%
Very	91	42%
Moderately	55	25%
Slightly	28	13%
Not at all	22	10%

4. How useful was the video master demonstration in your *performance of* **Survival Gate #4?**

☐ Extremely
☐ Very
☐ Moderately
☐ Slightly
☐ Not at all

Usefulness	n	%
Extremely	12	6%
Very	96	44%
Moderately	61	28%
Slightly	20	9%
Not at all	28	13%

5. What suggestions do you have to improve the overall design quality of the video for **Survival Gate #4**?

Suggestion	n	%
None	131	60%
No response	57	26%
Improve encouragement to watch	17	8%
Reference videos in class	5	2%
Didn't watch	4	2%
Organize videos better online	2	1%
Other	1	<1%

6. How useful was your instructor at *encouraging your viewing* of the video master demonstration for **Survival Gate #4?**

☐ Extremely
☐ Very
☐ Moderately
☐ Slightly
☐ Not at all

Usefulness	n	%
Extremely	30	14%
Very	97	45%
Moderately	70	32%
Slightly	13	6%
Not at all	7	3%

7. What suggestions do you have to improve the way your instructor used the video model for teaching **Survival Gate #4** in this course?

Suggestion	n	%
None	166	76%
No response	19	9%
Include more instruction	13	6%
Improve video angles	8	4%
Didn't watch	5	2%
Change model attributes	3	1%
Other	3	1%

APPENDIX C

INSTRUCTOR PARTICIPANT SURVEY INSTRUMENT AND INTERVIEW RESULTS

A. *Instructor Survey: Informed Consent and Initial Semi-Structured Interview*
There is a total of ten instructors teaching the Survival swimming course. This four question, electronically emailed survey and informed consent will be administered through the Office of Institutional Research (OIR) to all ten instructors in the Survival swimming course for term one round one of Academic Year 2019.

Informed Consent: During the first phase of the study, all instructors scheduled to teach Survival swimming for term one round one will be given the option to take the pre-course survey. Recruitment will be via email no more than two times by OIR personnel. The email will provide a link to the online survey which uses the SelectSurvey software. All subject data will be stored behind the service academy OIR firewall on a DoD approved secure server. The survey is expected to take 5-7 minutes to complete. Those that complete the survey after the first recruitment email will not receive the second and final email recruitment from OIR. The first part of the survey will include informed consent information. Subjects will not be able to proceed to the actual survey questions unless they consent to participating. The Phase 1 survey is comprised of the four questions below.

Subject Instructions: Please complete the following four question survey immediately upon receipt.

1. How many full years have you been teaching Survival swimming at this institution?

Full Years Teaching	**n**	**%**
0	3	30%
1	3	30%
2	2	20%
18	1	10%
26	1	10%

2. Have you ever implemented instructional videos into your teaching of a physical skill or sport?

☐ Yes
☐ No

Response	n	%
Yes	9	90%
No	1	10%

3. If you answered “Yes” to the previous question, how useful do you think video instruction has been at improving overall student performances?

☐ Extremely
☐ Very
☐ Moderately
☐ Slightly
☐ Not at all

Response	n	%
Extremely	3	33%
Very	4	44%
Moderately	1	11%
Slightly	1	11%
Not at all	0	0%

4. Rank order the following instructional methods (1-4) you think contribute most (1) and least (4) to student learning within the Survival swimming course.

☐ Reading the methodology and Survival Skill standards within the syllabus
☐ Listening to your explanation of the Survival Skill in class
☐ Watching a live demonstration of the Survival Skill in class
☐ Watching a video demonstration of the Survival Skill online

Instructional Method	n	%
Reading how to perform the skill or sport		
Ranked #1	0	0%
Ranked #2	0	0%
Ranked #3	1	10%
Ranked #4	9	90%
Listening to someone tell you how to perform the skill or sport		
Ranked #1	0	0%
Ranked #2	0	0%
Ranked #3	9	90%
Ranked #4	1	10%
Watching a live demonstration of someone performing the skill or sport		
Ranked #1	9	90%
Ranked #2	1	10%
Ranked #3	0	0%
Ranked #4	0	0%
Watching a video demonstration of someone performing the skill or sport		
Ranked #1	1	10%
Ranked #2	9	90%
Ranked #3	0	0%
Ranked #4	0	0%

B. *Instructor Interview: Semi-Structured Survival Swimming Instructor Interviews (post-course)*

The interview guide below was utilized consistently for all ten Survival swimming instructors within a week of the course ending during the data collection period. All interviews were audio recorded as well as transcribed for post-interview analysis by the researcher.

Leading Questions:

1. What are the most effective ways you've discovered in teaching Survival swimming at this institution? Please explain.

Teaching Modality	n	%
Live Demonstrations	9	90%
Verbal Feedback	8	80%
Repetitions	8	80%
Video Modeling	5	50%
Team Teaching	3	30%

2. In your experience, what are the strengths and weaknesses of live demonstrations at improving student understanding, learning, and overall performance of the Survival Gate skills? Please explain.

Strengths	n	Notes
Master demo that can precede live practice	10	Most beneficial to all level, but mostly elementary and low
Provides credibility of the instructor as a competent performer/instructor	8	
Forges trust between student and teacher (show you can do it too)	8	
Great for visual learners	4	
Gives confidence to performer that the skills they are being asked to do are possible	3	Important to be the gold standard as their instructor
Step by step Instruction in teaching/learning environment	2	
Less talking and more doing	2	One instructor will just "show" then "go"; one demo and now do it
Also, great if team teaching so one can demo while other talks through for more auditory learners	2	
Allows instructor to tailor the lesson based on feedback from live demonstration	2	Questions that result could drive lesson structure
Can view the demo from many angles compared to the video demonstration	2	
More engaging; less distractions compared to watching a video in your room or elsewhere	2	
Words turn into movement	1	
Brief and to the point when used effectively (5-7 minutes)	1	
Student demo may be more beneficial as it provides humility for students in the section	1	

Students pay most attention to other students providing live demo (this from a first-year instructor, but seasoned swim instructor)	1	
Feedforward mechanism that is recent	1	Only if students perform immediately thereafter demo

Weaknesses	**n**	**Notes**
Cannot see what is happening underwater; left to imagine	8	
Less time for them to practice; relies on instructor providing example like the video demonstration, or confusion follows	4	
Can take up a large composite of the class (15-20 minutes) if we let it, but during that time very little active learning happening	2	
Live demos that are not focused and go a different direction than projected may interfere with student learning and progressions	2	
No verbal instruction that accompanies live demo when you're teaching by yourself	2	Team teaching only at elementary level
No way to have instructor demo corrected if no other instructor present (importance of instructor trainer in performance standards)	2	
Demonstration may be different than the video model and even different as more iterations are performed	2	

3. In your experience, what are the strengths and weaknesses of <u>video demonstrations</u> at improving student understanding, learning, and overall performance of the Survival Gate skills? Please explain.

Strengths	**n**	**Notes**
Preview of Skills Working on in Upcoming Class	7	
Skills Broken Up into individual parts	6	
Less Questions when introducing skill	6	These are the answers to the test. Gives an advantage to those that

		watch ahead of time.
Mental rehearsal	8	If everyone watches, could progress instruction
Back Up Demonstration of What Instructor Provides Live	2	Available 24/7 on many platforms
Validation of What They Learned in Class	3	
Mobile	6	Most students use mobile devices primarily
Cadets Seek Out Technological Means of Assisting Success	1	
Can Assign Outside of Class	1	
Skills are always the same (I.e. entry for SG3)	1	
Can see what happens underwater	5	
Multiple Angles	4	SG3 for example, on tower entry, POV from tower and underwater swim
Many learn one way during video and a better way during live demo (or vice versa)	1	
Can reference areas of improvement in class and have them refer to video	1	
Videos are smaller skill sets many times which is easier for most to grasp	1	
Reduces anxiety prior to going to class	1	
Just as good as live demo for upper level because they are doers	1	
Provides common knowledge of what will be expected in class prior to arrival	1	
Instructor demo is gold standard if we all agree on it	1	

Weaknesses	**n**	**Notes**
Need to keep up with internet platform to ensure videos are working if you use them	4	
Instructor demo could be too good to live up to for some students	3	

Monotone, same voice over and over	1	
Way skills are performed on the videos are not the only answer (varies)	1	
No way to currently track how many times they watched it (good data point)	1	
Requires out of class time, which is not authorized for physical courses	1	
May not be as helpful with upper level students unless standards were harder on skills	1	
Increases anxiety prior to going to class if they know what's coming	1	
Demonstrator needs to be an expert on demonstrating movement	1	There will be confusion if not
Cadet video demonstrations could not be up to quality of what is expected	1	

a. How often do you watch the video demonstrations that you use as teaching tools?

Response	**n**	**Notes**
Watch them prior to sending out emails with link to make sure link is correct	4	
Watched a few times prior to course beginning	3	
Watched prior to being assigned to swimming at West Point	2	Used to improve own swimming skills; used to teach an ROTC swimming course in grad school; used to determine if I wanted to be part of the aquatics committee
Weekly	2	Mostly to ensure I'm teaching it correctly as a first- year instructor
Often, but no normal battle rhythm	1	

4. Do you implement video demonstrations into your teaching plan in survival swimming?

Response	n	Notes
Yes (more than one-year teaching in survival swim program)	5	Only when new skills are introduced, I email out; send out in chunks based on skills, never entire library at one shot
Yes (first year Instructor)	3	Reference in emails, at the beginning of classes and at end; reference only after introducing
No (first year Instructor)	1	
No (more than one-year teaching in survival swim program)	1	

a. How are students informed of the video library that is available to them?

Method of Informing	n	Notes
Instructor verbalizes it in class	5	
Instructor emails master link to all videos prior to course start	4	
Instructor emails specific links prior to each lesson	3	
Weekly email update	3	Sends out after introducing skill components in water (acts as connection between live demo, their work, and video master demo)
Instructor emails master link to all videos in every email	2	
Postscript link to library in all emails	2	
Biweekly email updates with video links	1	

Monthly email (high level course only)	1	
Prior to a tested event as reminder	1	

b. Do you reference the videos in class? How helpful is this to your instruction?

Response	n	Notes
Yes	8	Asks at beginning of class whether they watched videos; References video skills and techniques in class to check for understanding and use
No	2	Do not see a need to

5. What advice would you give new survival swimming instructors on how to successfully implement video demonstrations into their teaching plan?

Response	n	Notes
Use the videos first to improve your own teaching techniques	5	Be sure that what cadets are watching is consistent with what they are learning in class
Make links available in email communications	5	Master link seems to present problems as there are many other videos outside the course on that link
Be comfortable with the demonstrations and content so you're the expert	4	

Meet students where they are with technology use	3	GroupMe App; various means of meeting them where they are (poll them on app use)
Identify any discrepancies in the video demonstrations that you or students may point out in class	2	
Emphasized importance of video instruction use during cross-training	2	
Be sure to check for understanding from students regarding the video content	1	

a. How much of this advice did you learn on your own, from other instructors, or from student feedback?

Response	**n**	**Notes**
From observing experienced instructors my first term of instruction	5	
From current department instructor while in grad school	3	
Discovery learning during instructor training prep and as course began	2	
On own wanting to learn a physical skill	1	
From a colleague/mentor	1	
Watching the videos over and over	1	

6. How do you assess in your Survival swimming classes whether the live and video demonstrations are effective in producing student understanding, learning, and overall performance of the survival gate skills?

Method	**n**	**Notes**
Asks at the beginner of class who watched it	6	
Student demonstrates that they do or do not know how to do It	4	
Assesses based on how they react to my teaching in class	2	
Ask for understanding and to explain video skill in class to fellow students	2	
Feedback from students regarding quality of videos	1	
I do not assess it	1	

7. Are you planning to implement video demonstrations more, same, or less in the upcoming rounds of instruction in Survival swimming? Please explain.

Response	n	Notes
Same	5	Likes the way they are doing it
More	5	Needs to make a better effort

a. What are some barriers to student use of video demonstrations?

Response	n	Notes
Time	4	
Finding the links on the main YouTube Page	4	
None	2	

b. What are some ways to help students overcome these barriers?

Response	n	Notes
Have one YouTube page for Survival Swimming	8	
Send out video library links to all videos in every email	2	

c. What are some barriers to instructor use of video demonstrations?

Response	n	Notes
Finding the time to include links in emails or write regular emails	5	
Links aren't always reliable	3	

d. What are some ways to help instructors overcome these barriers?

Response	n	Notes
Meet as a group and discuss best practices on how to use videos	4	
Use older emails where links were included and work	3	Be sure to check all links work
Make a follow up email part of class instruction requirements for all instructors	2	
Allow instructors to use the videos as they wish without requirement	1	

8. That is all I have for questions at this point. Do you have any comments or questions of me related to the study design or outcomes?

Recommend having other classes model our way of delivering videos

Make interactive stations in pool venues and in Arvin Gym with videos available

Organize videos on service academy DPE YouTube page by course, then by event (too cluttered) - make separate channels for each course

Use other platforms besides YouTube (find out what cadets are using)

Would be great to equip students with GoPro to have them view their performance from first person view afterwards for improvement

Live videoing in class may be useful in the future but need to be sure we're using it within the scope of the time allotted vs. objectives required for course completion

Do not currently have a mentoring process in place to show how to utilize the video modeling in the instructional plan. (John not sold yet on taking away full autonomy, but open to best practices)

Videos may need frequent refining or updating based on skills changing or accessibility of information; meet students where they are

Would like to see large monitors in each pool to show the video models as well as any feedback videos, but need to be aware that this should not take up a large portion of the course; also, maybe add mirrors in pool to show how they are performing themselves

No need to demonstrate live the SG3/SG4

Important that instructors constantly review videos and talk about alternative solutions that were used in instruction or seen by cadets to achieve same result. Videos need to be altered to reflect this periodically. Stay current.

Standardize welcome email and follow up emails to include links to video library. Also, explain use and implementation of video library to instruction during first meeting and/or pre-class email.

Recommend adding Course End Feedback Question(s) regarding implementation and use of video modeling library; this would help assess how we go about business and could assist in updating videos and POI

Recommend as adjunct teaching tool, live video in class labs (night vision in CWSSL to clear up any issues with procedure on SG4)

Very little time in the classroom, so any way we can deliver the material on mediums that they use all the time and are easy to access will support the classroom instruction

I use students in class to verbalize to the group the effectiveness of the videos in understanding and performance just to have others see how they could benefit them

Important that if you are showing them alternative way of accomplishing a task and you've required them to watch the videos that you mention up front this is an alternative way of doing it.

Recommend students watch at least 24 hours prior to being introduced so they can digest the material, then once again right before introduction as a refresher. Then, after class as soon as possible to reinforce skill standards.

Recommend holding students accountable at the front end of class on watching videos. Ask what they learned? What we're doing today? How points are scored? Check for understanding each class so they all begin to watch videos.

Recommend renewed emphasis on encouraging incoming cadets, especially poor swimmers and service academy swimmers, to go to the video library to brush up prior to service academy entrance.

Recommend master demos for videos are instructor only.

Recommend regular quality control of videos being used for instruction.

Recommends new instructors, during mentoring phase, sit down with their instructor their shadowing and watch the videos together to pick out teaching points and discrepancies they see

Recommend catering any background music to the audience and ensure they all have access on multiple devices.

APPENDIX D

FACULTY DEVELOPMENT PRESENTATION (INTERNAL)

PURPOSE

- Collaborative, active learning session to explore the past, current, and future use of video modeling within physical education coursework, extracurricular activities, and testing

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AGENDA

- Review current study
- Breakout Discussions
  - Video Modeling Design
  - Video Modeling Implementation
- Facilitator Presentations
- Open Discussion
- Summary & Closing Remarks

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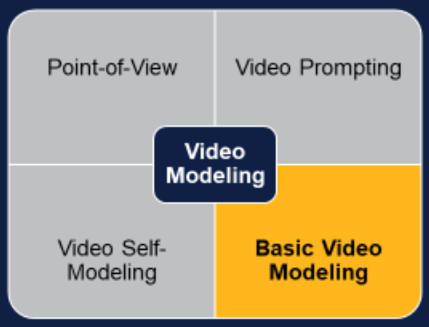
VIDEO MODELING DEFINED

- Teaching modality using a visual model of a desired skill or activity as an aid to improve performance



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PURPOSE STATEMENT

- Pursue evidence-based practice guidelines for student use and instructor implementation in Survival Swimming at the United States Military Academy

RATIONALE

- Survival Swimming competency thread prior to admission, through graduation, and into career
- Life or death skills being taught that transfer to future leadership roles
- Instructor and student assessments expose bridges and gaps between teaching and learning

Basic Training 150 yd Course Sectioning Tool → Survival Swimming Course → Confidence Water Obstacle Course → Future Army Leaders In Survival Swimming

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BACKGROUND

- Bandura's Social Learning Theory (1977)
- Modeling does aid in learning and retention (Mitchell et al., 2016)
- Used successfully by many professions for teaching new skills
- Common practice within physical education courses at USMA without assessing effectiveness
- Lack of standardization in pedagogical use

AIMS

- Examine and develop best practices for student use and instruction implementation
- Examine relationship between:
  - Student video modeling use (# of views)
  - Survival Gate Performances
  - Perceived understanding (what they now know before class begins)
  - Perceived performance (how they think the video aided in graded performance)

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METHODOLOGY & APPROACH (STUDENTS)

Methodology:

- Mixed methods study design
- Quantitative: nominal and categorical questions
- Qualitative: open-ended questions
- Student Sampling: stratified, random
  - *n* = 217/308 (70%)
- Statistical methods:
  - Descriptive
  - 2-Factor ANOVA
    - 3 Groupings based on # of video model views

Approach:

- Pre-course electronic survey of:
  - Video modeling use
  - Preferred learning styles
- Electronic survey following each of four survival gate tests, capturing:
  - # of video model views
  - Perceived understanding
  - Perceived influence on performance
- Strength: Large, representative subject pool
- Limitation: Self-reported data

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METHODOLOGY & APPROACH

Instructor Participants:

- Phenomenological design
- Quantitative: nominal and categorical questions
- Qualitative: semi-structured interview
- Instructor Sampling: stratified, focused
  - n = 10/10 (100%)
- Statistical methods:
  - Recording/Transcription
  - Investigator content analysis
  - Thematic development without predetermined course

Approach:

- Pre-course electronic survey of video modeling use
- One-on-one, semi-structured interview arranged post-course
- Strengths:
  - Input from 100% of instructors
  - Varied education experiences
  - Compares learning styles of student with teaching styles
- Limitations:
  - Investigator acted as instrument in content analysis and thematic development
  - Subject pool lacks diversity in gender, race, and teaching experience

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QUANTITATIVE RESULTS

Students:

- 64% viewed videos prior to lesson 1
- 94% indicated video models were moderately to extremely useful to learn new skills
- Rank pedagogical effectiveness of video modeling only behind live modeling
- Averaged 2 video modeling views for each of 4 survival gate tests
- Increased viewing of video models as the course progressed and tests became more complex
- Most frequent viewing by **lower level** course participants
- >80% approve of design quality of videos
- >85% approve of instructor implementation

Race & Gender of Student Participants

Race	Total	Male	Female
Caucasian	150 (69%)	115 (77%)	35 (23%)
African American	30 (14%)	23 (77%)	7 (23%)
Hispanic	19 (9%)	15 (79%)	4 (21%)
Asian	18 (8%)	14 (78%)	4 (22%)
Total	**217 (100%)**	**167 (77%)**	**50 (23%)**

Instructors:

- 6/10 first or second year instructors
- 90% use video modeling regularly to teach
- 88% indicated video modeling is "moderately" to "extremely" useful in preparing students to learn
- Rank pedagogical effectiveness of video modeling second behind live modeling

Significance:

- No significant interactions between number of student video modeling views and performance score (by individual or groups)
- Practical significance for students between ***number of views*** and ***perceived understanding*** as well as ***perceived performance***
  - 83% indicated viewing the video models were useful in their understanding of the survival gate skill prior to reporting to class
  - 77% indicated viewing the video models were useful in their performance of the survival gate skills in class

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QUALITATIVE RESULTS (STUDENTS)

Summary of Responses for Improvement of Design Quality:

- **Accessibility**
  - *"make videos more accessible with other internet platforms"*
- **Model Relatability**
  - *"I would like to see a fellow student performing and not the instructor"*
  - *"have minority student as a model as a high number struggle in this course"*
- **Various Viewpoints**
  - *"show different angles of the skill on all videos so that we can see it from above the water and below"*

Summary of Responses for Improvement of Instructor Implementation:

- **Classroom Upgrades**
  - *"have a smart board on pool deck so we can watch videos before or in class"*
- **Frequency and Type of Instructor Communications**
  - *"send out the videos more often, maybe in each email, or as a library of links"*
  - *"send out the direct links to each video so we don't have to sort through all the videos on the site"*
- **Student Education on Importance**
  - *"have instructor talk more about importance of videos in class to get us to watch"*

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QUALITATIVE RESULTS (INSTRUCTORS)

Summary of Responses for Strengths of Video Modeling Use:

- **Feedforward Mechanism**
  - *"establishes step-by-step instruction of each core skill"*
  - *"sending video links periodically helps establish performance standards"*
- **Reinforcement Tool**
  - *"provides a reinforcing tool away from the teaching venue"*
- **Time Saving Qualities**
  - *"less questions in class, resulting in more repetitions and performance feedback"*
- **Instructor Training**
  - *"great way to learn how the skills are to be taught prior to arriving to teach for the first time"*

Summary of Responses for Weaknesses of Video Modeling Use:

- **Value Dependent on Level of Learner**
  - *"not as beneficial for higher level swimmers"*
- **No Current Reliable Accountability Mechanisms**
  - *"there is no way to tell how many people actually watched the video prior to class"*
- **Models Chosen for Videos May Not Be Relatable to Students**
  - *"if an instructor acts as model, the performance may not relate to an 18-24 year-old novice swimmer"*

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CONCLUSIONS

- Results of this study point towards the complex, yet mutually beneficial, relational intersection of student use and instructor implementation of a video modeling library in this course, as well as how each can affect student engagement.
- Although statistical significance was not found to support video modeling affecting performance, practical significance was established for increasing student perceived understanding and performance.
- This research supports that of Mitchell and colleagues' (2016) increase in retention of information through frequent modeling use, Bandura's (1994) perceived self-efficacy influenced by similarities between model and student, and Rashid and Ashgar's (2016) increased access and exposure to technology improving performance and inculcating a culture of student engagement.

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IMPACT ON PROFESSIONAL PRACTICE

- Provides scientific approach to assessing use, implementation, and effectiveness of video modeling for other physical education courses at this United States service academy
- Establishes guidelines for best practices in design quality and implementation of video modeling for courses investigating the addition of video modeling
- Fills a research gap in the use of video modeling in teaching physical education courses, in particular, swimming
- Assesses the impact of the Survival Swimming video modeling library
- Allows for transfer of video modeling best practices to Army agencies interested in adopting

REFERENCES

Bandura, A. (1977). *Social Learning Theory*. General Learning Press, New York (NY).
Mitchell, S.A, & Fissette, J.L. (2016). *The essential of teaching physical education: Curriculum, instruction, and assessment.* Champaign, IL: Human Kinetics.

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Breakout Discussion Locations

- Military Movement and Boxing in KINES Classroom
- Aquatics and Combat Applications in DPE Foyer

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Breakout Facilitator Talking Points on Video Model Design

- How many of you have had experience using video models to teach? What activities?
- Do you think they've been effective? Why or why not?
- What assessments, if any, have you used to determine their effectiveness?
- Course Director explains the current video model library history and how it was developed. If not current library, CD explains plan for one in five minutes or less.
- What aspects of design would be most critical in creating or updating a video library for this course?
  - Time, Space, Resources required
  - Model characteristics
    - Instructor? Student? Race? Gender? Body Type?

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Breakout Facilitator Talking Points on Video Model Implementation

- What is the best way to deliver a video model library to students in this course? Why?
- How is or will learning be assessed from video modeling use?
- Best practices for communicating to student how to effectively use the video library?
- Facilitator consolidates notes on both topics to present to larger group and reassembles group back in conference room with others

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Facilitator Briefs x4 (5 min each)

- Overview of current video modeling use (if any) in your course
- Best Practices for Video Design
- Best Practices for Video Implementation

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Open Discussion

- Are there other areas besides core instruction that video modeling is being used for instruction?
  - Competitive Sports, Testing, Cognitive Courses
  - How is that going? Student/Instructor feedback?
  - Best Practices
- What other areas of the program would benefit from video modeling use?

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Open Discussion

- Are there other areas besides core instruction that video modeling is being used for instruction?
  - Competitive Sports, Testing, Cognitive Courses
  - How is that going? Student/Instructor feedback?
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APPENDIX E

SURVIVAL SWIMMING STANDARDS

Survival Gate # 1

1. UNIFORM: Swimsuit, Goggles
2. PROTOCOL: Cadet enters the water from a controlled seated entry position, pushes away from the wall to a stationary position in the center of the lane, and demonstrates 5 consecutive rhythmic bobs; touching the pool bottom on each iteration in a controlled linear fashion. After the 5th bob, the cadet returns to the surface, and transitions into a 2-minute treading position, maintaining a consistent stationary front surface support posture (ears above surface), before transitioning into 3-minute survival floating position (redundant head/body roll demonstrating applicable air exchange protocol) and finishing with two controlled linear rhythmic bobs and one vertical exhalation in re-establishing a POS.
3. STANDARDS:
   a. 5 Ryth Bobs = 3 pts
   b. 5 Ryth Bobs + 2 M Tread = 5 pts (8pts)
   c. 5 Ryth Bobs + 2 M Tread + 3 M Survival Flt = 7 pts (15pts)
   d. 5 Ryth Bobs + 2 M Tread + 3 M Survival Flt + 2/1 Vert.Exh. = 5 pts (20pts)

Survival Gate # 2

1. UNIFORM: Swimsuit, ACUs, Belt, Boots, MOLLE, Weapon
2. PROTOCOL: Cadet enters the water off 1M platform (starting block), utilizing a proper stride entry from a port arms position with weapon. Cadet successfully cross-slings the weapon after entry and continues with a controlled surface stroke application for 15yds. Cadet then transitions to one of two continuance MOLLE ditch options - both of which require mandatory weapon removal/control during the ditch process itself:

Bob/Travel/Ditch	Surface Swim Ditch
Cadet performs Bob and Travel technique approx 8yds before executing controlled MOLLE ditch while maintaining control of sling and/or weapon. *Note:* Repetitive stationary bobs are authorized for the ditch AFTER achieving the 8yd B/T minimum.	Cadet performs a surface ditch of the MOLLE maintaining the entire upper torso (belly button-head) within 2' of air throughout the ditch while maintaining control of weapon. NOTE: Successful surface ditch is defined as cadet demonstrating continued horizontal locomotion, sling and/or weapon in hand, **AFTER** successfully ditching

3. Upon successfully completing the MOLLE ditch, Cadet then surface swims with a stroke of choice executing a turn at the 23yd marker and continues with the weapon to the 20yd marker (flags). Cadet will then assume a vertical position ("head high-ears dry") making contact with the weapon three consecutive times (submerging the weapon between "taps") on a hanging object, before once again achieving horizontal locomotion back to the underwater obstacle where the weapon is surface ditched. Within three seconds of the weapon surface ditch, Cadet then swims down beneath the obstacle surfacing on the opposite side before swimming back to a final position of safety. **EVENT TESTING NOTES:** MOLLE must be "buddy checked" (weight validated) prior to any test iteration and remain clipped until an in-water ditch protocol is initiated. Weapon must be removed from a cross slung position when executing MOLLE ditch and hand carried (by sling or weapon) throughout. Intentional blouse inflation (to aid surface swimming) is not permitted.

   STANDARDS :
   a. 15 yd wet cy = 3pt
   b. 15 yd wet cy + B/T (or) surf ditch = 6pts/11pts (3 or 8)
   c. 15 yd wet cy + B/T (or) surf ditch + 3 vert taps = 11pts/16pts (5)
   d. 15 yd wet cy + B/T (or) surf ditch + 3 vert taps + surf sw/weap = 17pts/22pts (6)
   e. 15 yd wet cy + B/T (or) surf ditch + 3 vert taps + surf sw/weap) + obstacle = 25pts/30pts (8)

Survival Gate # 3

1. UNIFORM: Swimsuit, ACUs, Belt, Boots
2. PROTOCOL: Following the commands of the Instructor, the cadet will execute a straight high level (6.5 meter) compact jump entry into the pool, transition into an underwater swimming posture, and attempt to swim for distance (25 yds max) underwater navigating a series of submerged hoops. Upon surfacing, cadet will swim 50yds (approx.) utilizing any combination of survival stroke back to point of water break…not touching walls or lane lines throughout. Upon swim completion, cadet must then achieve stationary blouse inflation (surface buoyancy) with no supporting kick/arm movement, indicating such with closed fist on head. NOTE: Cadets must perform a straight forward step from platform to initiate the test and remain in the command posture position (feet together-legs crossed) until fully submerged. Blouse inflation to aid the 50 yd swim is not permitted.
3. STANDARDS :

Distance	Score
Enter	2 pts
Hoop # 1	7 pts (2pts+5pts+SSA 10pts)=**17pts**
Hoop # 2	13 pts (2pts+5pts+6pts+SSA 10pts)=**23pts**
Hoop # 3	21 pts (2pts+5pts+6pts+8pts+SSA 10pts)=**31pts**
Far Wall	30 pts (2pts+5pts+6pts+8pts+9pts+SSA 10pts)=**40pts**

Surface Swim Addendum Skill Values
5pts – Successful Surface Swim
5pts – Successful Stationary Blouse

Survival Gate # 4 (**One attempt testing iteration only-know your testing date-no make-ups will be permitted!)

1. UNIFORM: ACUs (bloused) with belt; M4 Weapon; Boots (laces tucked in); MOLLE
2. PROTOCOL: *Head first (on back) slide entry – hand held weapon over chest/barrel down. *Analysis/Execution as per embedded graph.
3. STANDARDS: All completed in Diamond Wave Format with conditional effects – (continuous movement-may not submerge more than 2 feet throughout the ditch)

20 POINTS	30 POINTS	35 POINTS	45 POINTS
1. *SLIDE ENTRY 2. *EQUIP DITCH 3. *ACU INFLATION	*SLIDE ENTRY **SURFACE SWIM – 12 YDS** *EQUIP DITCH *ACU INFLATION	* SLIDE ENTRY **SURFACE SWIM – 12 YDS** *EQUIP DITCH **SWIM W/O RIFLE – 60 YDS** *ACU INFLATION	BLIND OPERATIONAL DRAW Cadet will draw one of three survival options, each with varying degrees of difficulty associated with successful completion. Scenarios will be disclosed prior to the performance of a blind draw on the day of the test.
MANDATORY	**MANDATORY PLUS** SURFACE SWIM – 12YDS	**MANDATORY PLUS** **SURFACE SWIM – 12 YDS** **SWIM W/O WEAPON – 60 YDS**	**NOTE: Cadet may choose to default back to a lesser point quotient at any time during the testing iteration.**

EVENT TESTING NOTES: MOLLE must be “buddy checked” (weight validated) prior to any test iteration and remain clipped until an in-water ditch protocol is initiated!!